

AMENDMENTS TO THE CLAIMS

Please amend the claims as set forth below. A listing of all pending claims is presented below.

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Currently Amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted,

wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said

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conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information,

wherein said scene change detection means uses the product of a code amount allocated to each frame and an average quantization scale of the first image compression information as the variable representative of the complexity of the screen for the frame to detect whether or not a scene change is included in the frame, and.

[ An image information conversion apparatus according to claim 3,] wherein said scene change detection means subtracts, from the variable representative of the complexity of the screen of the intra-image coded picture of the inputted first image compression information, the variable representative of the complexity of the screen of the immediately preceding intra-image coded picture and determines that a scene change is included when the absolute value of the difference obtained by the subtraction is higher than a threshold value determined in advance.

5. (Currently amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted,

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wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information,

wherein said scene change detection means uses the product of a code amount allocated to each frame and an average quantization scale of the first image compression information as the variable representative of the complexity of the screen for the frame to detect whether or not a scene change is included in the frame, and.

[An image information conversion apparatus according to claim 3], wherein the code amount allocated to each frame of the inputted first image compression information is an entire code amount allocated to the frame.

6. (Currently amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted,

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wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information,

wherein said scene change detection means uses the product of a code amount allocated to each frame and an average quantization scale of the first image compression information as the variable representative of the complexity of the screen for the frame to detect whether or not a scene change is included in the frame, and.

[An image information conversion apparatus according to claim 3,] wherein the code amount allocated to each frame of the inputted first image compression information includes a code amount at least of a brightness signal component.

7. (Original) An image information conversion apparatus according to claim 6, wherein the code amount allocated to each frame of the inputted first image compression information includes a code amount regarding a brightness signal component and a code amount regarding a color difference signal component.

8. (Currently amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of

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the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted.,

wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, and.

[An image information conversion apparatus according to claim 2,] wherein said scene change detection means detects whether or not a scene change is included in the frame to be converted using an average value among pixel values of each frame.

9. (Original) An image information conversion apparatus according to claim 8, wherein said scene change detection means subtracts, from the average value among the pixels of the intra-image coded picture, the average value among the pixels of the immediately preceding intra-image coded picture and determines that a scene change is included when the absolute value of the difference obtained by the subtraction is higher than a threshold value determined in advance.

10. (Original) An image information conversion apparatus according to claim 8, wherein the average value of the intra-image coded picture among the pixels includes an average value at least of a brightness signal component among the pixels.

11. (Original) An image information conversion apparatus according to claim 10, wherein the average value of pixels of the intra-image coded picture includes an average value of the brightness signal component among the pixels and an average value of a color difference signal component among the pixels.

12. (Currently amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted,.

wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, and.

[ An image information conversion apparatus according to claim 2,] wherein said scene change detection means detects whether or not a scene change is included in the frame to be converted using an average value of a DC component among predetermined coding units included in each frame.

13. (Original) An image information conversion apparatus according to claim 12, wherein said scene change detection means subtracts, from the average value of the DC component among the predetermined coding units of the intra-image coded picture, the average

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value of the DC component among the predetermined coding units of the immediately preceding intra-image coded picture and determines that a scene change is included when the absolute value of the difference obtained by the subtraction is higher than a threshold value determined in advance.

14. (Original) An image information conversion apparatus according to claim 12, wherein the average value of the DC component among the predetermined coding units of the intra-image coded picture includes an average value of the DC component at least of a brightness signal component among the predetermined coding units.

15. (Original) An image information conversion apparatus according to claim 14, wherein the average value of the DC component among the predetermined coding units of the intra-image coded picture includes an average value of the DC component of a brightness signal component among the predetermined coding units and an average value of the DC component of a color difference signal component among the predetermined coding units.

16. (Canceled).

17. (Canceled)

18. (Canceled)

19. (Currently amended) An image information conversion method comprising the steps of:

converting inputted first image compression information into second image compression information to be outputted, each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

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detecting, when to calculate, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted.,

wherein, when it is detected that a scene change is included in the frame to be converted, the conversion from the intra-image coded picture into an inter-image predictive coded picture is limited.,

wherein the product of a code amount allocated to each frame and an average quantization scale of the first image compression information is used as the variable representative of the complexity of the screen for the frame to detect whether or not a scene change is included in the frame,

[An image information conversion method according to claim 18,] wherein the variable representative of the complexity of the screen of the immediately preceding intra-image coded picture is subtracted from the variable representative of the complexity of the screen of the intra-image coded picture of the inputted first image compression information, and it is determined that a scene change is included when the absolute value of the difference obtained by the subtraction is higher than a threshold value determined in advance.

20. (Currently Amended) An image information conversion method comprising the steps of:

converting inputted first image compression information into second image compression information to be outputted, each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and



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detecting, when to calculate, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted.,

wherein, when it is detected that a scene change is included in the frame to be converted, the conversion from the intra-image coded picture into an inter-image predictive coded picture is limited.,

wherein the product of a code amount allocated to each frame and an average quantization scale of the first image compression information is used as the variable representative of the complexity of the screen for the frame to detect whether or not a scene change is included in the frame.,

[An image information conversion method according to claim 18,] wherein the code amount allocated to each frame of the inputted first image compression information is an entire code amount allocated to the frame.

21. (Currently Amended) An image information conversion method comprising the steps of:

converting inputted first image compression information into second image compression information to be outputted, each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

detecting, when to calculate, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted, prior to conversion

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of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted.,

wherein, when it is detected that a scene change is included in the frame to be converted, the conversion from the intra-image coded picture into an inter-image predictive coded picture is limited.,

wherein the product of a code amount allocated to each frame and an average quantization scale of the first image compression information is used as the variable representative of the complexity of the screen for the frame to detect whether or not a scene change is included in the frame.,

[An image information conversion method according to claim 18,] wherein the code amount allocated to each frame of the inputted first image compression information includes a code amount at least of a brightness signal component.

22. (Original) An image information conversion method according to claim 21, wherein the code amount allocated to each frame of the inputted first image compression information includes a code amount regarding a brightness signal component and a code amount regarding a color difference signal component.

23. (Currently amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

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scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted.

wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, and.

[An image information conversion method according to claim 17], wherein it is detected whether or not a scene change is included in the frame to be converted using an average value among pixel values of each frame.

24. (Original) An image information conversion method according to claim 23, wherein the average value among the pixels of the immediately preceding intra-image coded picture is subtracted from the average value among the pixels of the intra-image coded picture, and it is determined that a scene change is included when the absolute value of the difference obtained by the subtraction is higher than a threshold value determined in advance.

25. (Original) An image information conversion method according to claim 23, wherein the average value of the intra-image coded picture among the pixels includes an average value at least of a brightness signal component among the pixels.

26. (Original) An image information conversion method according to claim 25, wherein the average value of pixels of the intra-image coded picture includes an average value of the

brightness signal component among the pixels and an average value of a color difference signal component among the pixels.

27. (Currently amended) An image information conversion apparatus comprising:

conversion means for converting first image compression information inputted to said image information conversion apparatus into second image compression information to be outputted from said image information conversion apparatus; each of the first image compression information and the second image compression information including at least intra-image coded pictures and inter-image predictive coded pictures; and

scene change detection means operable when said conversion means calculates, based on a variable representative of a complexity of a screen for each frame of the inputted first image compression information, a target code amount for each frame of the second image compression information to be outputted for detecting, prior to conversion of an intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, whether or not a scene change is included in a frame of the intra-image coded picture to be converted..

wherein, when said scene change detection means detects that a scene change is included in the frame to be converted, said scene change detection means limits the conversion by said conversion means from the intra-image coded picture of the first image compression information into an inter-image predictive coded picture of the second image compression information, and.

[An image information conversion method according to claim 17,] wherein it is detected whether or not a scene change is included in the frame to be converted using an average value of a DC component among predetermined coding units included in each frame.

28. (Original) An image information conversion method according to claim 27, wherein the average value of the DC component among the predetermined coding units of the immediately preceding intra-image coded picture is subtracted from the average value of the DC

component among the predetermined coding units of the intra-image coded picture, and it is determined that a scene change is included when the absolute value of the difference obtained by the subtraction is higher than a threshold value determined in advance.

29. (Original) An image information conversion method according to claim 27, wherein the average value of the DC component among the predetermined coding units of the intra-image coded picture includes an average value of the DC component at least of a brightness signal component among the predetermined coding units.

30. (Original) An image information conversion method according to claim 29, wherein the average value of the DC component among the predetermined coding units of the intra-image coded picture includes an average value of the DC component of a brightness signal component among the predetermined coding units and an average value of the DC component of a color difference signal component among the predetermined coding units